

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please CANCEL claims 14, 15, 18, 20, 23, 25, 26 and 28, and AMEND claims 11, 16, 21 and 30 in accordance with the following:

Claims 1-10 (cancelled).

11. (Currently Amended) A method for monitoring particle concentration in a gas stream, comprising:

collecting particles by a sensor in the gas stream, the sensor being integrated as a capacitive element into an electromagnetic resonant circuit;

exciting the resonant circuit with an alternating voltage;

determining a reference value of a characteristic variable of the resonant circuit, the characteristic variable varying as a result of particle load of the sensor, the reference value being determined when the sensor is not loaded, where the characteristic variable is one of a resonant frequency of the resonant circuit and a voltage across the sensor when the resonant circuit is excited by the alternating voltage having a fixed frequency and a fixed amplitude;

heating the sensor to a temperature above an ignition temperature of the particles and sufficient to remove a particle load; and

determining a change in the characteristic variable brought about by the particle load compared to the reference value.

12. (Previously Presented) The method as recited in claim 11, wherein a frequency of the alternating voltage exciting the resonant circuit is tuned to determine the resonant frequency of the resonant circuit as the characteristic variable.

13. (Previously Presented) The method as recited in claim 12, further comprising heating the sensor, during said determining of the reference value of the characteristic variable, to a temperature below an ignition temperature of the particles and sufficient to remove impurities adhering to the sensor.

14-15. (Cancelled).

16. (Previously Presented) A device, excited with alternating voltage, for monitoring particle concentration in a gas stream, comprising:

an electromagnetic resonant circuit excited with the alternating voltage;

a sensor in the gas stream, integrated as a capacitive element into the electromagnetic resonant circuit, collecting particles, having a nonconductive base body made of porous material and two electrodes spaced apart from one another and embedded in the nonconductive base body; and

a characteristic variable determiner determining change in a characteristic variable of the electromagnetic resonant circuit, the characteristic variable varying as a result of particle load of said sensor, from a reference value determined when said sensor is not loaded due to having been heated above an ignition temperature of the particles, where the characteristic variable is one of a resonant frequency of the resonant circuit and a voltage across the sensor when the resonant circuit is excited by the alternating voltage having a fixed frequency and fixed amplitude; and

a heating device heating said sensor above the ignition temperature of the particles prior to determining the reference value of the characteristic variable.

17. (Previously Presented) The device as recited in claim 16, wherein the nonconductive base body is composed of ceramic.

18. (Cancelled).

19. (Previously Presented) The device as recited in claim 17, wherein the electrodes are arranged on a side of the nonconductive base body inaccessible to the particles.

20. (Cancelled).

21. (Currently Amended) The device as recited in claim 20 16, wherein the base body includes a catalytically active layer.

22. (Previously Presented) The device as recited in claim 21, wherein the particles are

soot particles in an exhaust gas stream of an internal combustion engine.

23. (Cancelled).

24. (Previously Presented) The device as recited in claim 16, wherein the electrodes are arranged on a side of the nonconductive base body inaccessible to the particles.

25-26. (Cancelled).

27. (Previously Presented) The device as recited in claim 16, wherein the particles are soot particles in an exhaust gas stream of an internal combustion engine.

28. (Cancelled).

29. (Previously Presented) The device as recited in claim 11, wherein the particles are soot particles in an exhaust gas stream of an internal combustion engine.

30. (Currently Amended) An apparatus for monitoring soot particle concentration in a gas stream, comprising:

an electromagnetic resonant circuit excited with an alternating voltage of variable frequency;

a sensor in the gas stream, integrated as a capacitive element into the electromagnetic resonant circuit, collecting soot particles between electrodes of the capacitive element; and

a particle concentration estimator estimating the soot particle concentration in the gas stream based on a change in a resonance frequency of the electromagnetic resonant circuit due to the collected soot particles in the sensor;

a heating device heating said sensor above an ignition temperature of the particles to remove the collected soot particles from the sensor.